

# Interplanetary Magnetic Field Power Spectrum Variations in the Inner Heliosphere: A Wind and MESSENGER Study

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The newly reprocessed high time resolution (11/22 vectors/sec) Wind mission interplanetary magnetic field data and the similar observations made by the MESSENGER spacecraft in the inner heliosphere affords an opportunity to compare magnetic field power spectral density variations as a function of radial distance from the Sun under different solar wind conditions. In the reprocessed Wind Magnetic Field Investigation (MFI) data, the spin tone and its harmonics are greatly reduced that allows the meaningful fitting of power spectra to the  $\sim$ 2 Hz limit above which digitization noise becomes apparent. The power spectral density is computed and the spectral index is fitted for the MHD and ion inertial regime separately along with the break point between the two for various solar wind conditions. Wind and MESSENGER magnetic fluctuations are compared for times when the two spacecraft are close to radial and Parker field alignment. The functional dependence of the ion inertial spectral index and break point on solar wind plasma and magnetic field conditions will be discussed.